NOTE XVI.

ZOOLOGICAL RESULTS OF THE DUTCH SCIENTIFIC EXPEDITION TO CENTRAL-BORNEO.

THE REPTILES

BY

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Part I. Lizards.

The following pages contain an enumeration of the lizards collected in Borneo by the Dutch Borneo-Expedition, of which expedition Mr. J. Büttikofer was the zoologist, and also of the lizards collected by Dr. A. W. Nieuwenhuis during his travels in the interior of this island. The collections made during these expeditions were very graciously presented to the Leyden Museum of Natural History and form a valuable addition to our collections; so among the 37 species of lizards there are no less than 7 new species and moreover 8 species were hitherto not represented in our Museum. These last named 8 species are indicated in our list with an asterisk.

1. *Gymnodactylus consobrinus* Ptrs.

One young specimen, measuring 41 mm. from the tip of the snout to the vent, was captured by Dr. Nieuwenhuis in the neighbourhood of the River Bo.

2. *Gymnodactylus marmoratus* Kuhl.

Two very young specimens from Sintang.

* 3. *Aeluroscalabotes felinus* Gthr.

One young specimen, measuring 45 mm. from snout to vent, collected by Dr. Nieuwenhuis on the Upper Mahakam.

Our specimen differs in coloration from Boulenger's description in having one median dorsal series of lighter dark-edged spots, flanked on each side with a series of smaller spots. These three series, the median and the two lateral ones, continuing on the tail.

Tail shorter than the body, vertically oval, broader in the middle than at the root, ending in a white coloured tip.

4. *Hemidactylus frenatus* D. & B.

Several specimens from Sintang.

5. *Hemidactylus nigriventris*, nov. spec.

Allied to *H. frenatus*, but differing from this species in the lepidosis of the tail and the presence of a fold along the sides of the belly.

Fingers free, moderately dilated, inner with sessile claw. Upper surfaces covered with small granules, largest on the snout; on the back these granules are intermixed with some irregularly scattered, small, round, convex tubercles always very much smaller than the ear-opening.

A distinct fold from axilla to groin.

Tail round, but slightly depressed at the base, and not depressed at all further backwards, tapering, covered above with very small smooth scales without enlarged or spinose tubercles, below with a median series of transversely dilated plates.

Rostral four-sided, nearly twice as broad as deep, with median cleft above; nostril pierced between the rostral and four nasals, the first labial being separated from the nostril by the first of these four nasals.

Ten upper- and twelve lower labials.

Mental large, triangular, two pairs of chin-shields, the first in contact behind the mental.

Grey above, underpart of head and gular region whitish, underparts of belly and limbs darker, middle of the belly and underpart of feet black, underpart of tail black, except 14 or 15 plates in the middle of the tail which are whitish.

One single specimen from Sintang.

From snout to vent 50 mm., tail 43 mm.

* 6. *Hemidactylus karenorum* Theob.

Snout obtusely pointed, longer than the distance between the eye and the ear-opening, $1^2/_3$ the diameter of the orbit; forehead slightly concave, ear-opening small, rounded. A slight fold along the flanks and another bordering the hind limb posteriorly. Inner digit well-developed, with 5 lamellae, middle finger with 10, first toe with 6, fourth toe with 13 infradigital lamellae. Upper surface of body covered with minute granules, intermixed with numerous small, convex, round tubercles. Tail depressed, flat below, with sharp denticulated lateral edge.

Uniform grey above, lower parts lighter.

Distance from snout to vent 57 mm., tail 66 mm.

A single specimen from the foot of the Goenoeng Kenepai.

I have long hesitated whether our specimen ought to be classed with *H. Garnoti* D. & B., but because of the presence of small, convex, round tubercles between the minute granules on the back, I think I am right in classing it with *H. karenorum*.

7. *Hemidactylus platyurus* Schneid.

Several specimens from Sintang.

8. *Gehyra mutilata* Wiegm.

Specimens from Sintang, Goenoeng Kenepai and by Dr. Nieuwenhuis from the rivers Howong and Upper Mahakkam.

9. *Gecko monarchus* D. & B.

Several specimens from Sintang.

* 10. *Ptychozoon Horsfieldii* Gray.

One single specimen, captured at Nanga Raoen, measuring 70 mm. between the tip of the snout and the vent, with the tip of the tail regenerated behind the thirteenth pair of lobes.

Our specimen differs from the specimens of *Ptychozoon homalocephalum* in our collections: in the total absence of convex tubercles among the scales of the back, as well as in the absence of rings of conical tubercles on the upper part of the tail, and in the small number of the praeanal pores (only 11 in our specimen).

The lobes on both sides of the tail are not directed perpendicularly on the tail but obliquely directed backwards. Behind the nostril, which is pierced between the rostral, the first labial and three rather large nasals, there are, bordering the upper labials, three shields much larger than the scales on the snout. As the end of the tail is regenerated, I am unable to say whether the tail was widened at the end. In coloration our specimen quite agrees with Brehm's illustration of *P. homalocephalum* (Edition 1892 on page 42) and shows, besides the two round spots on the nape and large spots between the fore limbs, very distinct black bands on the upper part of the tail.

11. *Draco cornutus* Gthr.

Four specimens collected by Dr. Nieuwenhuis: 3 from the Upper Mahakkam, 1 from Long Bloe at the Upper Mahakkam.

12. *Draco volans* L.

Four specimens from Sanggau on the Kapoeas river, collected by Mr. Westeneng.

13. *Draco quinquefasciatus* Gray.

Three specimens collected by Dr. Nieuwenhuis: 2 (♂ and ♀) from Bloe, 1 (♂) from the Upper Mahakkam.

14. *Draco haematopogon* Gray.

Three specimens collected by Dr. Nieuwenhuis: 2 (♂ and ♀) from the Upper Mahakkam, 1 (♂) from Bloe.

* 15. *Draco cristatellus* Gthr.

One specimen by Dr. Nieuwenhuis on the Upper Mahakkam. I am not quite sure whether *D. cristatellus* Gthr. ought to be regarded as a distinct species, differing from *D. fimbriatus*. Our specimen agrees with Gunther's description in having a crested tail, the crest being formed by rather distant, triangular, pointed scales, which scales are by no means smaller than those reproduced in the figure of *D. cristatellus*. Our specimen has on both sides, bordering the patagium, a series of somewhat larger, conical scales, as is generally to be met with in specimens of *D. fimbriatus*, and differs in this respect from Boulenger's description of the typical specimen of *D. cristatellus*, where is stated that no lateral series of enlarged scales is to be seen in that specimen. Still it may be doubted whether one may in every instance be guided by the presence or absence of such a series of enlarged scales. One of our specimens of *D. fimbriatus* (a very large female, already mentioned by Schlegel in his »Abbildungen") shows only two enlarged scales on each side of the back.

I find another reason for doubting the distinctness of the species *D. cristatellus* in the presence in our collection of two specimens of *D. fimbriatus*, one from Sumatra and one from Java, with crested tail; the crest in the Javanese specimen is formed by a series of elevated scales, lying consecutively one behind the other, and all larger and higher than the enlarged scales of the lateral series of the back; the crest in the Sumatra-specimen is formed by still larger scales, which however do not follow each other consecutively, but are separated from each other by one, two or three scales which are neither elevated nor enlarged.

16. *Goniocephalus liogaster* Gthr.

One half-grown specimen from Sambas, summit of Damoes (1200 M.), collected by Dr. Hallier.

17. *Goniocephalus grandis* Gray.

One female-specimen, collected by Dr. Nieuwenhuis on the Upper Mahakkam.

18. *Goniocephalus* spec.

One very young specimen from the Upper Mahakkam.

19. *Japalura nigrilabris* Ptrs.

One specimen from Sambas, Kampong Damoes, collected by Dr. Hallier, another by Dr. Nieuwenhuis on the Upper Mahakkam.

20. *Japalura ornata* Lidth.

One specimen by Dr. Nieuwenhuis from Long Bloe on the Upper Mahakkam.

21. *Calotes cristatellus* Kuhl.

Several specimens from different localities. In some specimens a very curious discoloration, probably resulting from the action of the formolaldehyd, is to be seen: the green colour having totally disappeared, and being replaced by a reddish brown colour; in one specimen the head and the tip of the tail are still greenish, the rest of the body being reddish brown.

22. *Ophisaurus Büttikoferi*, nov. spec.

Lateral teeth conical. Breadth of the azygos praefrontal three fourth the greatest width of the frontal, as broad as the interparietal and broader than the suture between frontal and interparietal. It is separated from the frontal by two praefrontals. Interparietal twice as broad as the parietals, very much broader than the occipital, which is very small. Three shields on a line from the nasal to the azygos praefrontal; five supraoculars. Ear-opening distinct, not larger than the nostril. Dorsal plates in 16 longitudinal and 105 transverse series; 12 of these longitudinal series keeled (the keels forming unbroken straight lines), the other four series smooth; the outer series partially covered by the lateral fold. Ventrals in 10 longitudinal series, smooth. No rudiments of limbs externally. Tail thrice as long as head and body, upper- and lower caudal scales strongly keeled, the keels forming unbroken straight lines.

Brown above, with a darker lateral band, this lateral band is continued on the tail and separated from the brown dorsal part by a light coloured demarcatian line. On the interparietal a small blue spot, indicating the situation of the parietal-eye. On the beginning of the back irregular transverse series of bluish, black-edged spots. Lips and lower parts pale yellowish, a dark line below the eye, continuing on the lower labials and the gular region; a similar dark line below the corner of the mouth, and one below the ear-opening; the continuation of these stripes is a dark line, running on either side of the belly on to the vent.

From snout to vent 12,5 cm., total length 50 cm.

This species (which I dedicate to my friend Dr. J. Büttikofer, the zoologist of the Borneo-Expedition) is nearly allied to *Ophisaurus gracilis* Gray, but differs in the number of longitudinal dorsal series and in the much longer tail.

One single specimen from Mount Liang Koeboeng.

23. *Varanus Dumerilii* Schl.

One specimen from Nanga Raoen, and a very young specimen collected by Dr. Nieuwenhuis near the river Howong.

24. *Varanus salvator* Laur.

Dried specimens and specimens in spirits from Smitau and Pontianak.

25. *Tachydromus sexlineatus* Daud.

Several specimens from Mount Kenepai.

Several of our specimens have three frontonasals in stead of two of these shields, the middle one much smaller than the outer ones, in contact with the internasal as well as with the frontal. In one single specimen this third frontonasal is not in contact with the frontal, the two outer frontonasals meeting one another behind the azygos middle shield and separating it from the frontal. In this same specimen the anterior supraocular is not in contact with the loreal, the first supraciliary extending far anteriorly, and so shoving itself between supraocular and loreal. This abnormal specimen agrees in most regards so entirely with the other specimens, that I do not feel inclined to separate it from the named species.

26. *Mabuia multifasciata* Kuhl.

Specimens from Sintang, Smitau and the neighbourhood of the river Howong.

* 27. *Mabuia rudis* Boulenger.

One specimen from Sintang, and one specimen by Dr. Nieuwenhuis from Bloe.

28. *Lygosoma Büttikoferi*, nov. spec.

Section *Hinulia*. Body elongate, limbs well-developed, the distance between the end of the snout and the fore limb is contained about once and a fourth in the distance between axilla and groin. Snout rather short, obtusely pointed. Lower eyelid scaly. Nostril pierced in a single nasal, no supranasals; frontonasal much broader than long, forming a narrow suture with the rostral; praefrontals generally forming a median suture (in one of our three specimens a small triangular scale, separated from the frontal, wedges itself in between the two frontonasals); frontal somewhat shorter than interparietal and frontoparietals together, its posterior part very narrowly pointed, in contact with two supraoculars; four supraoculars; nine supraciliaries; frontoparietals and interparietal distinct, subequal in length; parietals forming a suture behind the interparietal; no enlarged nuchals, but each of the parietals bordered by four scales of which the fourth (anterior) is very large. Ear-opening roundish, smaller than the eye-opening, without auricular lobes. Third to fifth upperlabial below, but not in contact with the eye. 24 rows of smooth scales round the middle of the body, dorsals largest. A pair of enlarged praeanal scales. The length of the hind limb a little larger than the distance between the tip of the snout and the fore limb. 22 smooth subdigital lamellae under the fourth toe; the adpressed limbs overlap. Tail thick, once and a fourth to once and a fifth as long as head and body.

Above reddish brown, with four longitudinal rows of darker spots, two on the middle of the back and one on each side, beginning behind the eye; lower parts uniformly light coloured.

	a	*b*	*c*
Length from the tip of the snout to the fore limb:	37 mm.	34 mm.	32 mm.
Length of the tail:	broken.	42 mm.	39 mm.

Three specimens were collected during the Borneo-Expedition at Liang Koeboeng.

29. *Lygosoma olivaceum* Gray.

Four specimens from Smitau and Nanga Raoen, one from the river Howong. One of the specimens from Nanga

Raoen with very small supranasals, the supranasal being a minute elongated scale, situated in the posterior upper corner of the nasal. Moreover this specimen has a row of three somewhat enlarged colourless scales at the heel and the outer side of the foot, the inner of these scales at the heel as large as three scales under the middle of the foot.

30. *Lygosoma vittatum* Edeling.

Three specimens from Sintang.

31. *Lygosoma Nieuwenhuisii*, nov. spec.

Section *Keneuxia*. Habit lacertiform. The distance between the end of the snout and the fore limb is contained once and a fourth in the distance between axilla and groin. Snout rather elongate, pointed, somewhat depressed. Lower eyelid scaly. Nostral pierced in a single nasal, a small supranasal not in contact with its fellow. (In our single specimen the supranasal of the left side, though having only half the depth of the nasal, extends over the whole breadth of the nasal and is in contact with the nostril; the supranasal on the right side being a very small elongate shield, situated in the posterior upper half of the nasal shield). Frontonasal as long as broad, in contact with the rostral and with the frontal, the suture with the frontal very narrow; the frontal shorter than frontoparietal and parietals together, in contact with the first and second supraoculars; five supraoculars, second largest, fifth very small; nine supraciliaries, first largest, the others not much differing in length. Frontoparietals and interparietal distinct, the latter larger than the former, the parietals meeting behind the interparietal, each of them bordered by one nuchal and two temporals. One pair of nuchals. Fifth supralabial below the eye, the height of this supralabial nearly twice the height of the fourth supralabial. Ear-opening very small, with one small projecting pointed lobule on its anterior border. 24 smooth scales around the middle of the body, dorsal ones largest, especially the two median series. Scales on the praeanal region somewhat enlarged.

The adpressed hind limb reaches the elbow. No enlarged scale on the heel. Digits slender, with strong sharp claws, the distal phalanges strongly compressed; subdigital lamellae smooth, 18 under the fourth toe, the fourth and fifth lamellae (reckoned from the claw) being much longer than any of the other lamellae. The tail, regenerated at the tip, a little shorter than head and body.

Brownish above, with a bluish glossy hue and lighter and darker spots; below a uniform steelish blue; tail above with transverse dark bands, separated by lighter interspaces.

Length from the tip of the snout to the vent: 57 mm.
Length of the tail (regenerated at the tip): 55 mm.

One single specimen captured at Long Bloe by Dr. Nieuwenhuis.

This species is structurally very like the other species of the section *Keneuxia*, and probably very nearly related to R. Shelford's *Lygosoma Vyneri*, from which it differs o. a. in the number of scales round the body, the shorter frontal which in our species is in contact with the frontonasal and in the coloration.

I dedicate this beautiful species to Prof. Dr. A. W. Nieuwenhuis, to whom the Leyden Museum is indepted for so many valuable zoological objects.

* 32. *Lygosoma? Vyneri* Shelf.

Another specimen of *Lygosoma* (section *Keneuxia*), captured by Dr. Nieuwenhuis on the Upper Mahakkam, differs from the foregoing specimen in the following points: the scales round the body are larger and in 22 series; the praefrontals form a median suture before the frontal; the very small ear-opening is without auricular lobe; the distance between the end of the snout and the fore limb is contained once and two thirds in the distance between axilla and groin; the adpressed limbs overlap; the colour of the not very beautifully preserved specimen is a putty grey (perhaps in the living animal olive grey); several scales of the head edged with black; five black stripes over the middle of the back between the longitudinal series of the scales; only three of these stripes on the sacral region and the beginning of the tail, the anterior and posterior part of the scales also of a blackish colour, the central quadrate putty grey, lower parts uniform grey, the upper parts of the median portion of the tail with dark transverse bands separated by lighter interspaces.

Though the frontal of our specimen is evidently smaller than the frontoparietals and interparietal together, and the patietals form a suture behind the interparietal, I do not think it improbable that this specimen belongs to *Lygosoma Vyneri*, described by R. Shelford in Ann. Mag. Nat. Hist. (7) Vol. 15, p. 208.

Length from the tip of the snout to the vent: 63 mm.
Length of the tail: 78 mm.

33. *Lygosoma Hallieri*, nov. spec.

Section *Homolepida*. Body rather elongate, limbs short, the distance between the end of the snout and the fore limb is contained about once and a half in the distance between axilla and groin. Snout short, obtuse. Lower eye-lid scaly. Nostril pierced in a single nasal. No supranasals; frontonasal broader than long, forming a broad suture with the rostral; praefrontals forming a median suture; frontal as long as the frontoparietals and the interparietal together, in contact with the two anterior supraoculars; four supraoculars; nine supraciliaries; frontoparietals and interparietal distinct, latter shield lozengeshaped, much smaller than the frontoparietals; parietals small, forming a suture behind the interparietal, not in contact with the supraoculars from which they are separated by the frontoparietal and another smaller shield next to it. No enlarged nuchals; third to fifth upperlabials below the centre of the eye, from which they are separated by a series of scales. Ear-opening roundish, rather large, smaller than the eye-opening. 40 smooth scales round the middle of the body, ventrals largest. Praeanals not enlarged. The length of the hind limb equals the distance between the anterior corner of the eye and the fore limb, the adpressed limbs nearly meet; fourth toe longer than third, with 14 subdigital lamellae. Tail thick, somewhat more than once and a half the length of head and body.

Brown above, upper parts of the sides of body and tail brown with irregular lighter spots, lower parts and belly light coloured.

Distance from snout to vent: 37 mm.
Total length: 95 mm.

One single specimen captured at Poetoes Sibau.

Named after Dr. Hallier, the Botanist of the Expedition.

*34. *Tropidophorus Beccarii* Ptrs.

One specimen, captured by Dr. Nieuwenhuis near the river Howong and measuring 85 mm. from snout to vent, with a tail of 125 mm., has its upperparts of a brown colour, spotted or marbled with darker, its sides dark grey with some small white spots, its underparts white with dark vermiculations under the head; the underpart of the tail covered with dark brown light-edged scales; the soles of the feet dark brown.

This specimen has 32 rows of smooth scales round the middle of the body, the ventrals being the largest, the shields on the upperpart of the head being smooth.

Contrary to the description and the figure of the typical specimen, as well as to Boulenger's description, the praefrontals of this specimen do not form a suture, the frontonasal being in contact with the frontal. The length of the frontal in this specimen equals the length of frontoparietals, interparietal and parietals together, though in Peters' figure [1]) of the typical specimen the length of the frontal is smaller than the length of frontoparietals and interparietal together, and Boulenger says: »frontal as long as or a little longer than frontoparietals and interparietal together".

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1) Annali del Museo Civico di Storia naturale di Genova, Vol III, 1872, pl. IV, fig. 3.

A third point in which our specimen differs from the typical one is in the arrangement of the submental shields. Peters mentions one very large azygos submental, followed by one pair of submentals meeting in the middle line, and a second pair separated by one scale; but in the figure he gives (3^b) a scale is wedged in between the posterior part of the submental shields of the first pair, and the shields of the second pair do not touch one another but are separated by three scales. Now, in our specimen the submental shields of the first pair form a suture over their whole length, whilst the shields of the second pair form a suture over half the length, with a small triangular scale wedging itself in between the posterior half of these submentals.

35. *Tropidophorus iniquus*, nov. spec.

Another specimen of *Tropidophorus*, collected by Dr. Nieuwenhuis in the neighbourhood of the upper part of the Kajan river, measuring 96 mm. from snout to vent and with a mutilated tail of 82 mm., differs still more than the foregoing specimen from the description of *Tropidophorus Beccarii*.

The coloration of the upperparts of this specimen rather agrees with the coloration of our Howong-specimen, except in the colour which is (probably by the action of the formolaldehyd) dark grey in stead of brown. The underparts are white, without the vermiculations under the head; the posterior lower part of the tail and the soles of the feet are of a dark colour.

This specimen has 34 rows of scales round the middle of the body, the ventrals being the largest; but the scales on the back are not smooth as those of our Howong specimen nor do they show the glossy appearence peculiar to the scales of that specimen. The median part of the scale, which e. g. in *Tropidophorus Brookii* wears a distinct keel, is in our specimen provided with a groove flanked on each side by a swollen band, the breadth of these thicker bands with the groove in the middle measuring about one third of the visible part of the scale. On the nuchal scales there are three swollen bands, one in the middle and two on the flanks, separated by two grooves.

Upper head-shields uneven, rugose. Snout long, pointed. A single frontonasal, much longer than broad, in contact with the rostral as well as with the frontal. Frontal as long as frontoparietals, interparietal and parietals together. The distance from the posterior point of the frontal to the tip of the snout once and a half the distance from the posterior part of the frontal to the posterior part of the suture between the parietals. Five supraoculars, first longest, fifth very small; six supraciliaries anterior to the fourth supraocular, the seventh in contact with it. Frontoparietals smaller than the interparietal, behind which the parietals form a suture. Fifth upper labial largest, in contact with the eye. A very large azygos postmental, followed by two pairs of large postmentals, both in contact with each other over the whole length. Third pair of submentals much smaller, separated by four scales, three of which are only a little smaller than the submentals themselves. A single large plate covers the praeanal region. The adpressed hind limb reaches between the wrist and the elbow. Subdigital lamellae smooth.

Though the foregoing specimen from the river Howong forms the passage between this specimen and the typical *Tropidophorus Beccarii* with regard to the disposition of the praefrontals, the submentals and the size of the frontal, still I see so many differences between our Kajan- and our Howong-specimen, especially in the form of the head-shields and of the scales on the back, that I think I am justified in describing this Kajan-specimen as the type of a new species.

* 36. *Tropidophorus Brookii* Gray.

Three specimens: one semi-adult, measuring 60 mm. from snout to vent and with a total length of 180 mm., and two young ones, with a total length of 100 mm., all collected at Nanga Raoen. In none of these three specimens do the praefrontals form a suture together; in the largest one there is no suture to be seen between the parietals situated behind the interparietal. They all have a large azygos postmental, followed by three pairs of large postmentals, the shields of the first two pairs in contact over their whole length, those of the third pair separated by four much smaller scales.

37. *Tropidophorus micropus*, nov. spec.

Habit slender. Head-shields strongly striated. Snout long, pointed. A single frontonasal as long as broad. Two frontonasals forming a short suture before the frontal. Frontal longer than the frontoparietals and the interparietal together, in contact with three of the four supraoculars. Seven supraciliaries, first and second large, the others very small; no supraciliaries below the fourth supraocular.

Frontoparietals somewhat smaller than interparietal; parietals forming a suture behind interparietal. Fourth upper labial largest, with a groove running from the lower posterior corner diagonally to the higher anterior corner of this shield, which borders the eye. Tympanum broadly oval, larger than the eye-opening. 34 scales round the middle of the body, six longitudinal series of strongly keeled dorsals ending in a sharp point, lateral scales smaller, keeled in oblique series, ventrals in 6 series, smooth, as large as the scales on the middle of the back, larger than the lateral scales. The scales below the head smooth, those below the neck keeled, except the scales of the two middle rows. Scales of the tail all keeled, except the middle series of broad shields which are smooth. A single large praeanal scale. One azygos postmental followed by three pairs of large postmentals, the shields of the first and of the second pair in contact with each other, those of the third pair separated by four scales. Limbs slender; the distance between the posterior part of the eye to the fore limb much longer than the length of the fore limb.

The distance between the tip of the snout and the fore limb nearly as long as the distance between fore- and hind limb. The fingers of the adpressed hind limb reach those of the fore limb. Subdigital lamellae smooth.

Brown above with lighter markings. Our specimen shows a broad yellow spot on the sacral part. Light below, under part of head and neck marbled with darker. Lower part of tail light, with irregular dark spots.

One single specimen was captured by Dr. Nieuwenhuis at Long Bloe, Upper Mahakkam, and measures 40 mm. from the tip of the snout to the vent; length of tail 48 mm.

Leyden Museum, May 1905.